



I-495 @ Park and Ride Lot / Truck Weigh Station

Truck Trends

Substantial amounts of freight move to, from and through Maryland. In fact, it is estimated that freight just originating and terminating in Maryland is valued at \$445 billion annually. This amounts to more than 346 million tons of goods movement. Maryland has an excellent system of highways, port infrastructure, airport, and rails to support the movement of freight.

Freight in Maryland moves via truck, water, rail and air. By far, the highest percentage is trucking with approximately 75% of the freight tonnage moving on highways. In order to support the economic vitality, SHA processed more than 136,000 oversize/overweight truckload permits last year for the movement of goods in or around Maryland. Our position as a “through” state related to the key corridors of I-95 and I-81 continues to require that freight congestion be minimized. For example, on sections of I-95 there are more than 27,000 trucks per day.

The movement of freight is impacted by the same reliability and congestion challenges that motorists on the network face. Unpredictable congestion and delay reduces the reliability of delivery times, which leads to costlier freight movement. The trend toward leaner supply chains and changes in on-line retail require efficient roadway networks, warehouses, and intermodal facilities to ensure timely and cost-effective delivery. Planners and policymakers are paying special attention

to population growth related to freight demand, increases in warehouse and distribution facilities in heavily trafficked corridors, and growth in intermodal traffic, which is expected to increase with the completion of the Panama Canal expansion project in 2015. Numerous warehouse developments have occurred along the I-95 corridor including distribution giant Amazon opening a one million square foot distribution center in Southeast Baltimore in 2015.

MDOT has initiated a program to monitor overnight truck parking when it occurs along shoulders of highways and entrance/exit ramps. Trucks parking at appropriate rest areas decrease the potential for crashes between parked trucks and moving vehicles. A survey was performed on the major routes in the Maryland Truck Route System to identify locations where overnight truck parking is occurring. On a peak night, more than 750 trucks were parked on the mainline and ramps either directly on or near these roadways. I-95 was the leading route for truck parking with an average of more than 300 trucks parked during the given survey night. The average number of trucks parked overnight approximately doubled along I-95 due the reopening of the Maryland House Travel Plaza in Harford County. The I-95/I-495 truck weigh station and the I-95 northbound Welcome Center in Howard County with more than 60 trucks parked overnight were the highest recorded locations for overnight truck parking.

The American Transportation Research Institute (ATRI) evaluated congestion costs for trucking on the interstate system. Maryland was rated 7th highest among all states in congestion costs with the six higher states being much larger in size (California and Texas). The Washington DC metropolitan area experienced the 5th highest congestion costs for highway freight movement.

The Federal Highway Administration (FHWA) Office of Freight Management and Operations monitors interstate highways as part of the Freight Performance Measures (FPM) Initiative. A major monitoring area is the identification of bottlenecks on the nations interstate system. The ATRI developed the 2014 Congestion Impact Analysis of Freight Significant Highway Locations. This report identifies a “total freight congestion value” in a four step process which includes determining a free flow speed, the average truck speed, an hourly freight congestion based on speed and on volume. This is added together for the 24 hour period. Four of the top 100 locations at the junction of two interstates were in Maryland including:

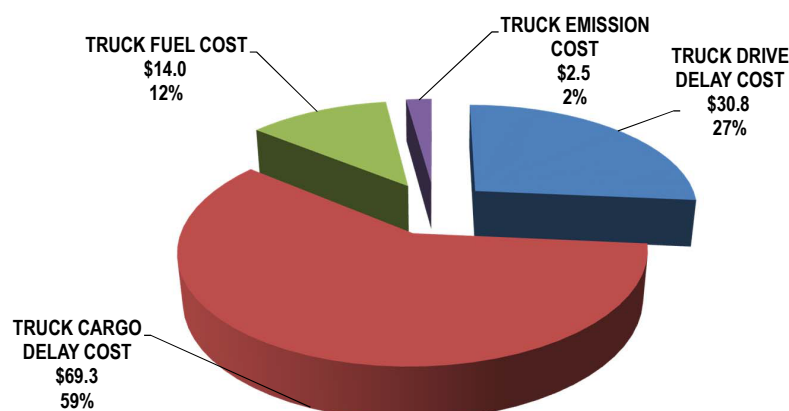
- I-95 @ I-495
- I-95 @ I-695 (South)
- I-495 @ I-270 (East)
- I-95 @ I-695 (North)

Congestion on truck routes throughout the State has an influence on the cost of the products we buy and impacts the environment and our safety. Delay and fuel costs are more significant to truckers than to motorists. Among the most problematic locations for truckers that are not at the junction of two interstate highways include:

- I-95 Northbound @ MD 100
- I-95 Outer Loop @ US 50
- I-695 Outer Loop @ Edmondson Ave.
- I-270 Northbound @ C-D Road Merge
- I-695 Inner Loop @ MD 147
- I-695 Outer Loop @ US 40
- I-695 Inner Loop @ MD 41
- I-270 Northbound @ MD 80

Congestion on the freeway/expressway network results in driver delay costs, cargo delay costs, diesel costs and increased emissions. This amounts to an estimated \$116.6 million in 2014. The following graph illustrate the cost breakdowns.

2014 FREIGHT CONGESTION COSTS ON MARYLAND'S FREEWAYS/EXPRESSWAYS (\$ MILLIONS)





I-95 SB Welcome Center

4. DEVELOPER PROJECTS

Economic developments generate higher traffic volumes that can cause operational issues such as failing intersections or traffic from turn lanes queuing into through lanes. In order to mitigate these additional traffic volumes, SHA works with developers to determine the improvements required to offset the additional traffic the development will generate. The improvements can range from acceleration and deceleration lanes, to a new traffic signal, to a major intersection enhancement. SHA works with the developer on the improvements to be implemented. Some of the locations where improvements were completed in 2014 include:

- US 301 @ Mitchellville Road (Prince George's County)
- US 40 over Cranberry Run (Harford County)
- MD 32 @ Raincliffe Road/Sandusky Road (Carroll County)
- MD 32 Westbound @ Cedar Lane (Howard County)

Traffic generated from these developments is mitigated by these improvements, funded by the development. These projects provide improvements in traffic operations thereby providing savings in user travel times and fuel costs.

5. FREIGHT PROJECTS

An increase in the number of trucks along the Maryland roadway system means the economy is expanding and more goods and services are being produced in the area and moved throughout the region. This increase in freight movement does bring safety issues including drowsy truck drivers and insufficient places to rest.

Truck parking is both a safety and infrastructure preservation issue, similar to the issue of overweight trucks, which can cause increased risk and damage to the system. In order to address truck parking, a project was developed to expand the truck parking capacity at the I-95 southbound Welcome Center in Laurel. This approximately doubled the number of spaces at this location to 61.

Another safety issue is at-grade railroad crossings. There are 633 public at-grade rail crossing and 22 pedestrians crossings in Maryland. Improvements include new flashing light signals, additional signal heads and improved crossing surfaces, both on State roads and County roads. In calendar year 2014 approximately 10 crossings were modified including along MD 550, Lander Road, Old Mill Bottom Road, Canal Road, South Division Street and Stone Chapel Road.



MD 355

To improve mobility for truckers SHAs' Motor Carrier Division has instituted a Virtual Weigh Station (VWS) program. This program uses technology to protect the reliability of the pavement and keep trucks moving smoothly. Maryland's VWS promotes the goals of safety, freight mobility and infrastructure preservation through an automated system of sensors and cameras that record activity of Commercial Motor Vehicles (CMV) traveling at high speeds. The VWS can record the speed, height and weight of a commercial vehicle without requiring the vehicle to stop, which reduces delay time for compliant vehicles. Overweight vehicles which damage roads and bridges can be identified for possible enforcement action or educational contact. Likewise, CMV exceeding the speed limit or height restrictions may lead to similar intervention. Each VWS also classifies vehicles and provides a traffic count; but unlike the older system of Automated Traffic Recorders (ATR), the VWS provide an image as well. The analytics feature of

the VWS application allows better targeting of enforcement activities with real-time reports identifying traffic volumes, speeds, class and weight related trends. Currently, there are seven active VWS sites across the state. Thirteen more sites are anticipated to be constructed over the next four years. Ten of these sites will monitor Maryland Transportation Authority's bridges and tunnels. The goal is to establish a "blanket" across the state to electronically check a majority of CMV's, intercept the ones that are unsafe or overweight, and allow the legal ones to continue without delay.

6. PEDESTRIAN AND BICYCLE PROJECTS

Pedestrian and bicycle improvements are implemented through various funding mechanisms. As of September 2014, more than \$48 million dollars is allocated to upgrade facilities.

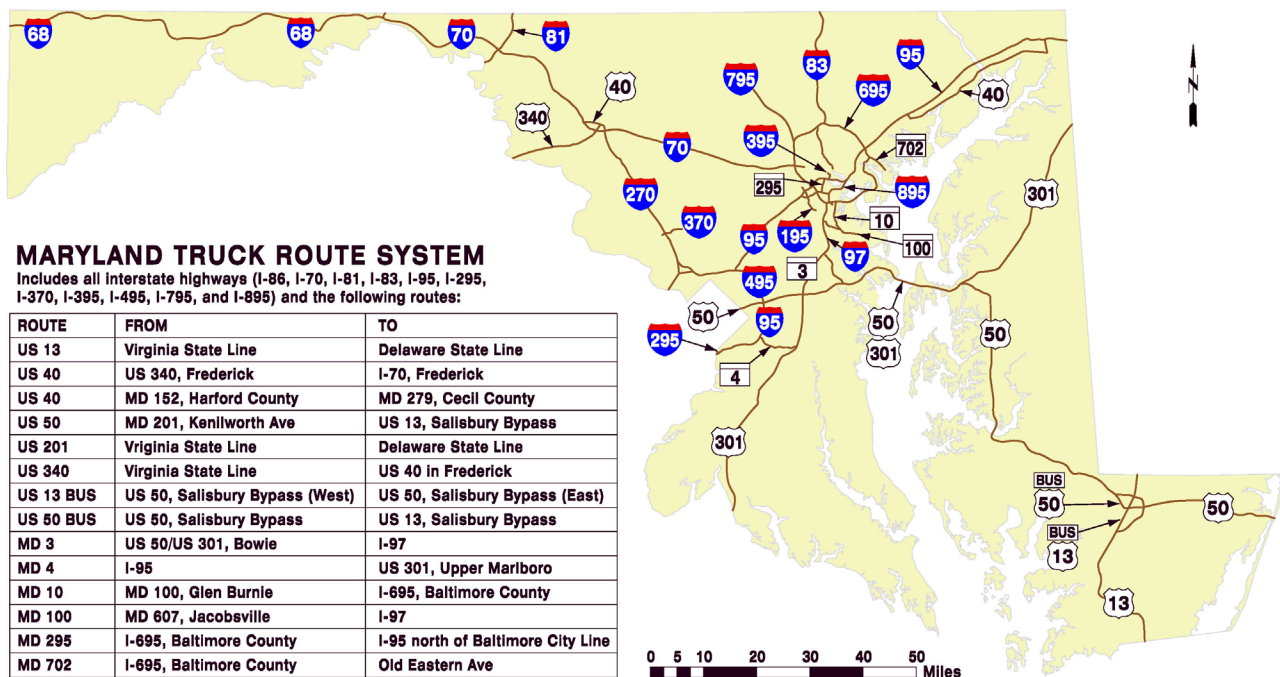
Sidewalk improvements may involve the building of new sidewalks or the rehabilitation of existing sidewalks. Across the State, 11.4 miles of new sidewalk were installed in calendar year 2014, including:

- MD 17 - Eagle Bay Drive to Cedar Street (Frederick County)
- MD 355 - Grafton Street to MD 191 (Montgomery County)
- US 40 Alt. - Willow Circle to Kenley Ave (Washington County)

In addition, other upgrades include installing accessible pedestrian signals and constructing ADA compliant ramps. Accessible pedestrian signals are now provided at 66% of the intersections in Maryland, an annual increase of 6% of the total signals statewide. The number of sidewalks that are ADA compliant statewide is nearly 66%.

3. FREIGHT

The movement of freight is critical to distributing goods and services throughout Maryland and the East Coast. Although this is vital to the economy, residents often prefer to prohibit trucks near their homes. Maryland established the Maryland Truck Route System which consists of approximately 900 miles of roadways throughout the State. This includes all interstate routes (481 miles), seven segments of U.S. Routes (320 miles) including US 13, US 40, US 50, US 301, US 340, US 13 Business and US 50 Business and seven segments of Maryland state routes (99 miles). The state routes include sections of MD 3, MD 4, MD 10, MD 100, MD 201, MD 295 and MD 702. Maryland SHA is in the process of updating its truck route system to further address intermodal movements, truck network gaps, improve connections and identify other routes experiencing a high-severity index related to truck crashes. Other programs and policies include improving at-grade railroad crossings through the Highway-Rail Crossing Program, programs to construct virtual weigh stations and CVISN facilities and the on-going development of the Maryland One Hauling Permit System.



Freight is integrated into highway project planning as a result of the SHA/MDTA Freight Implementation Plan. This document provides direction for future transportation investments to enhance the safe and efficient movement of commercial vehicle freight.